

LESSONS IN DIETETICS

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COCOA

Cocoa was first brought to Europe from Mexico by Columbus in 1520. The fruit of the cocoa plant resembles somewhat a cucumber. Embedded in the pulp are many seeds from which cocoa is prepared. The seeds are separated from the pulp and placed in heaps, for several days to ferment or sweat. This causes the adherent pulp to become loose, modifies the bitterness, and produces a dark color. The seeds are then roasted, which renders them brittle and loosens the husk, so that the two halves come out separately by pressure in a machine where they are known as cocoa-nibs. The nibs are either sold as such or are ground between hot rollers, which, by melting the fat which they contain, reduces them to a fluid condition. Most of the fat is removed by pressure, and the remainder of the cocoa is then run into moulds, from which it is removed as slabs. These slabs are ground into a powder for soluble cocoa or cocoa essence. However, soluble cocoa is a misnomer, for, strictly speaking, there is no such thing as a soluble form of cocoa. All that the term implies is that the powder is so finely divided that it easily remains in a state of suspension when mixed with water. In order to aid the suspension, various methods of treating the cocoa are sometimes adopted. The addition of alkali is a favorite device, especially with Dutch manufactures. It aids suspension by saponifying and emulsifying the fat, and at the same time softens the fibre of the cocoa, so that it can form a sort of pulp with water. It also has the effect of deepening the color of the beverage, and so of making it look stronger. The free addition of alkali is objected to by some as being injurious to health, but it is very doubtful if that can be fairly alleged against it. There are also methods of increasing the solubility of cocoa by the aid of heat and to these no objection can be urged.

CHEMICAL COMPOSITION OF COCOA

The chief ingredient is fat, of which the cocoa bean contains about half its weight. In the commercial powder, however, there is only about

thirty-two per cent. present, the remainder having been removed by pressure. Cocoa contains a considerable proportion of nitrogen—twenty-one per cent. being present in the form of proteids.

The chief alkaloid is theobromine, similar to caffeine. Cocoa contains also some tannic acid, though probably not of exactly the same form as that found in coffee and tea.

Starch is present to the extent of five and seventy-eight hundredths to fifteen and thirteen hundredths per cent.

The proportion of mineral matter is high, amounting, in raw cocoa, to from two and a half to three and a half per cent.

CHOCOLATE

Chocolate consists of ground cocoa from which the fat has not been removed, mixed with white sugar and starch. Flavorings, such as vanilla, are often added. The inferior varieties are made from unfermented beans, and therefore have a bitter taste. Good chocolate should melt easily in the mouth.

INFLUENCES OF TEA, COFFEE AND COCOA ON DIGESTION

The influences of these beverages on salivary and gastric digestion is, on the whole, unfavorable; of their effects on intestinal digestion we have little exact knowledge. Tea and coffee retard the peptic digestion, tea to a greater extent than coffee. Tea reduces the acid-absorbing power of foods; coffee has a similar but less marked effect, while cocoa actually increases it. For this reason, cocoa is the most appropriate beverage for patients suffering from the acid forms of dyspepsia. Often when the digestion is enfeebled, the stimulating effect of tea or coffee is useful.

Tea and coffee should both be avoided as an accompaniment to meals which make large demands on the peptic powers of the stomach, such as meals containing much meat. The irritating effects of these beverages on the stomach are more likely to be manifested when the latter is empty. The effects are probably least when the stomach is neither quite empty, nor too full.

USES OF TEA, COFFEE AND COCOA

The action of tea and coffee on the body depends entirely upon the tannic acid, caffeine and volatile oil which these beverages contain. The effects of the tannic acid are purely local, acting as an astringent. The caffeine and volatile oil, have a general pronounced physiological

action. Caffeine, like alcohol, is a stimulant, but unlike alcohol, affects the central nervous system even more than the heart.

The vital centres share in the stimulation produced by caffeine, as well as the brain cortex. After its administration, the respiratory movements are deeper and more frequent, and the heart beats more forcibly and rapidly. It is thus an important aid in combating impending paralysis of these centres in cases of coma. The action of the volatile oil contained in tea and coffee has not been fully investigated. It appears to act as a cerebral and cardiac stimulant and also produces some of the unpleasant symptoms, such as headache and giddiness. These oils seem also to have an action upon the blood-vessels, for tea tends rather to dilate the superficial vessels and render the skin moist, while coffee has the opposite effect.

It may be concluded, that tea and coffee are in no sense foods, in that they neither build up the tissues nor provide them with potential energy though they may diminish nervous fatigue. The bad effects usually attributed to an excessive indulgence in these beverages are of two kinds, affecting the nervous system or the digestion. The action of cocoa on the nervous system is very much less than that of tea or coffee.

Theoretically, cocoa is a valuable food, but practically it is not, because so little can be taken at a time. A breakfast cup of cocoa yields about forty Calories of energy. If it is prepared with milk and sugar the food value is much higher. Chocolate is of more value. One-half pint of milk with two ounces of chocolate yields about four hundred Calories of energy. The action of chocolate on the nervous system is less than that of tea and coffee.



THE USE OF FAT FREE MILK IN INFANT FEEDING.—Dr. Charles W. Townsend, writing in *The Boston Medical and Surgical Journal*, thinks that, while fat is very necessary to the normal infant, it is more often given in excess than is generally supposed. Excess of fat may cause one or more of a number of symptoms, as, for example, constipation, white and "curdy" stools, a ravenous appetite with atrophy, convulsions. In gastrointestinal disturbances it is desirable to exclude fat. The proteids of undiluted fat free milk appear to be remarkably well borne even by young infants, and there is an absence of so-called curds from the stools.